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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: PETER VAN HÜLLEN

PCT NO.: PCT/DE01/02128 PCT FILED: 7 JUNE 2001

PRIORITY: 100 29 725.0 PRIORITY FILED: 16 JUNE 2000

TITLE: METHOD FOR MARKING ROLLED MATERIAL

PRELIMINARY AMENDMENT

ATTN.: BOX PCT APPLICATION
Ass't. Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Preliminary to the initial Office Action, please amend the above-identified application as follows:

IN THE SPECIFICATION:

On Page 1, line 1, please insert the following paragraphs:

--CROSS REFERENCE TO RELATED APPLICATIONS

Applicant claims priority under 35 U.S.C. §119 of German Application No. 100 29 725.0, filed on June 16, 2000. Applicant also claims priority under 35 U.S.C. §120 of PCT/DE01/02128, filed on June 7, 2001. The international application under PCT article 21(2) was not published in English.--

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On page 4, line 4 from bottom to page 5, line 3, please the paragraph with the following rewritten paragraph:

--Since it is known from past experience that many defects are found in the head piece of the rolled material, the detection of defects according to claim 9 is started only with a time delay, notably depending on the final rolling speed (3 m/s to 15 m/s), so that the head piece, which has to be cropped in any case, is disregarded in the detection as well as marking steps.--

On page 5, please replace the first complete paragraph with the following rewritten paragraph:

--According to claim 9, provision is made that the detected individual defects are summed up during a preset period of time and the marking command is triggered only once a previously defined defect relevance level has been reached.--

On page 5, please replace the third complete paragraph with the following rewritten paragraph:

--According to claim 10, the detected relevant defects are marked directly on the hot rolled material shortly after the latter has exited from the last rolling stand, thus before the material is cut to the length of the cooling bed.--

A marked-up copy of the changes made to the paragraphs is attached.

IN THE ABSTRACT:

Please add the attached Abstract of the Disclosure on a separate page.

IN THE CLAIMS:

Please cancel claims 1-6 and replace with new claims 7-13 as follows:

--7. A method for making material defects in/on rod-shaped rolled material upon exiting from the finishing rolling stand, in which the flawed spots are detected in the course of the rolling process by means of ultrasound testing and/or inductive testing, said information is supplied to a computer, the defective spots are identified and stored by the computer according to the type of defect and the location, and the computer controls a marking device with the help of said data in such a way that the rod-shaped, finished material is marked in the site determined by the computer according to the respective type of defect.

8. The method according to claim 7, characterized in that the defect evaluation or defect detection and the marking command take place only at the beginning of the material test after preset

period of time depending on the final rolling speed.

9. The method according to claim 8, characterized in that the detected individual defects are summed up in the course of a preset period of time and the marking command is triggered only after a defined defect relevance level has been reached.

10. The method according to claim 7, characterized in that the marking takes place directly on the hot rolled material prior to the cutting to cooling bed lengths.

11. The method according to claim 7, characterized in that the marking takes place after the cutting to cooling bed lengths prior to/after the cutting to the length specified by the customer.

12. The method according to claim 7, characterized in that the marking is only a virtual marking carried out and stored by the computer program.

13. The method according to claim 7, characterized in that an automatic sorting out is carried out based on the marking by means of electronic or optical detection of the marking.--

REMARKS

By this Preliminary Amendment, the application has been

amended to conform with U.S. practice, the cross-reference to the related application has been inserted on page 1. Also, claims 1-6 have been replaced by new claims 7-13 to avoid the surcharge for multiple dependency. In addition, an Abstract of the Disclosure has been added on its own separate page. No new matter has been introduced.

Entry of this amendment is respectfully requested.

Respectfully submitted,

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Enclosure: marked-up copy of paragraphs

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10, on the date indicated above, and is addressed to the Commissioner for Patents, BOX PCT APPLICATION, U.S. PTO, P.O. BOX 2327, ARLINGTON, VA 22202

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This is accomplished by means of an electronic data processing system which, after a defect has been reported, recognizes the type of defect involved, calculates the location of the defect in the later final product, and controls the marking device with the help of said data. The term ``marking'' means in the present context primarily a color marking on the final product. The product can be marked with different colors for internal and external defects, and repairable and irrepairable defects.

However, according to the invention, ``marking'' also relates to an electronic virtual marking with the help of which the sorting process is controlled, whereby the computer is coupled with the sorting device.

Owing to the fact that the detection and marking of defects are integrated in the rolling and cutting-to-length process, the result is a more precise and primarily a sure-targeted detection of defects, and a minimization of the processing time. Thus the rods detected to be good can be directly transported to the straightening or fin removal stations.

Since it is known from past experience that many defects are found in the head piece of the rolled material, the detection of defects according to claim [3] is started only with a time delay, notably depending on the final rolling

speed (3 m/s to 15 m/s), so that the head piece, which has to be cropped in any case, is disregarded in the detection as well as marking steps.

According to claim [3] 9 provision is made that the detected individual defects are summed up during a preset period of time and the marking command is triggered only once a previously defined defect relevance level has been reached.

In this way, it is assured that not every minor defect will immediately lead to a marking command, but that only defects are marked that make the product in fact unusable or lead to reworking of the material.

According to claim [4] 10 the detected relevant defects are marked directly on the hot rolled material shortly after the latter has exited from the last rolling stand, thus before the material is cut to the length of the cooling bed.

With the help of the installed electronic data processing system it is possible also to mark the material after it has been cooled on the cooling bed, before or after it is cut to the length specified by the customer. For this purpose, the material has to be logically marked by the program stored in the computer, so that the flawed part of the rolled rod can be virtually marked and sorted out.